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The author prefaces his volume with the statement that "the chief aim of the work is to present, in a popular and readily understood form, the chief evidences of the evolution of living beings. * * * A considerable experience as a biological teacher has long since convinced me that the hesitancy with which evolution is accepted, and the doubt with which even cultured persons are occasionally apt to view this conception of nature, arise chiefly from lack of knowledge concerning the overwhelming evidences of its existence which natural history presents."

The plan of the book is logical and in a degree original. After stating the nature of the problem, Professor Wilson tells us what the study of biology is, and the nature of biological studies, and he notes, in passing, that "an important characteristic of scientific investigation exists in the fact that, having no prejudices to defend or prepossessions to consult, the man of science stands in no dread of the results to which he may be led, and is placed at no disadvantage when he replaces beliefs, however time-honored they may be, by the newer phases of thought to which his studies have led." Indeed, the author is bold, vigorous and thoroughly scientific in spirit, and while a grain iconoclastic, it is refreshing to meet with scattered remarks and hits at the pseudo-conservatism which would frown down the results of scientific investigation. For while reverent in spirit, the author well claims that "the willful folding of the hands in deprecation of scientific investigation, and the shutting of the eyes in a so-called 'orthodox' and slumbering ignorance of the facts of nature, is the procedure of all others best calculated to sap the foundations of religion itself. It is such ideas which Dr. Martineau, with his accustomed ability, has ably denounced when he says, 'What, indeed, have we found by moving out along all radii into the Infinite?—that the whole is woven together in one sublime tissue of intellectual relations, geometric and physical—the realized original, of which all our science is but the partial copy. That science is the crowning product and supreme expression of human reason.'"

The evidence from protoplasm as the fundamental life-substance, the evidence from rudimentary organs, from the tails, limbs and lungs of animals, the evidence furnished by the science of likenesses, the evidence from missing links, from development, from the life-history of insects; the evidence from the constitution of colonial or compound animals, the fertilization of flowers, the evidences from degeneration and finally from geology, these subjects are dealt with fully and satisfactorily in succession, the whole forming a compact argument neatly and forcibly presented, in a manner which the scientific expert will not only approve but find little to criticize.

JORDAN AND GILBERT'S SYNOPSIS OF THE FISHES OF NORTH AMERICA.—None among the Bulletins of the U. S. National Museum exceed, or even equal, in importance this that has lately been issued as No. 16. The fishes are a numerous class in the waters of North America, even when, as in the case of this volume, the rich fauna of Mexico is excluded. The long coast lines of two grand oceans, together with the extensive fresh-water systems, raise the total number of species admitted in this synopsis to 1340, including eleven marsipobranchs, sixty elasmobranchs and seven chondrostids. The Physostomi number 510, and the Physoclisti 747.

The classification adopted is founded principally upon that of Professor Cope, but is, in some respects, derived from that of Professor Gill. In accordance with the views of the former naturalist, the sub-class Ganoidei is, in the list, totally abandoned, but the two orders which represent this, are placed in a special division, Holostei, of equal rank with Physostomi and Physoclysti. We think this a judicious move, but cannot assent to the reduction of the Chondrostei to the same rank. In deference to the views of Gill, the order Apodes is accepted to include the Holostomi, the Enchelycephali and the Colocephali of Cope. The two great fresh-water families of Plectospondyli contain 317 species, while the Siluridæ are twenty-nine, all the Isospondyli number only ninety, the Haplomi fifty-eight, and the Apodes sixteen. Among the Isospondyli the Salmonidæ have forty-five species, while the Clupeidæ, and their near relatives, twenty-seven.

Among the numerous families of the Physoclysti, the Scombridæ and Carangidæ together have forty-one, the various divisions of the Percidæ about a hundred and eight, the Serranidæ twenty-nine, the Sparidæ an equal number, the Sciænidæ twenty-six, the Scorpænidæ twenty-three, the Cottidæ sixty-nine, the Blennidæ forty-eight, the Gadidæ twenty-six and the order Heterosoma (Pleuronectidæ) forty-seven species.

These numerous species are placed in 487 genera, which form 130 families — a number probably somewhat too large. On account of the delay in publication, copious addenda have grown up, and several new species are there referred to or described, but the list of species is corrected up to date.

The Percidæ of our authors exclude the Aphredoderidæ, Elassoma, the Centrarchidæ and the Serranidæ, but include the extensive group of darters, or Etheostomatinæ, so long fought for as a separate family.

The three species of Caulolatilus mentioned by Dr. Gill as occurring upon the Pacific coast (*C. anomalus* Cooper, *C. affinis* Gill, and *C. princeps* Jenyns) are all referred to the latter species, a view the correctness of which was proved by Lockington three years ago (Proc. Phil. Acad. Nat. Sci., 1880, pp. 18–19) and, by a parity of reasoning, the *C. microps* of Goode and Bean is referred to the well-known *C. chrysops.*

This work is a necessity to every working student of ichthyology, whether occupied in the field or in the cabinet, and will, for many years to come, be the standard of reference. Its value is enhanced by the fact that it is the first large catalogue of species in which the attempt has been made to follow out the classification outlined by our leading ichthyologists, and founded on structural characters of more importance than the scales and spines which are the basis of the older classifications.

RECENT BOOKS AND PAMPHLETS.

Müller, F.—Dritter Nachtrag zum Katalog der herpetologischen Sammlung des Baseler Museums. Basel, 1883. From the author.

Chilton, C.—On two new Isopods. Ext. Transactions New Zealand Institute, 1882.

——Additions to the New Zealand Crustacea. Ext. idem., 1881.

——Additions to the Isopodan fauna of New Zealand. Ext. idem., 1882.

——Further additions to our knowledge of the New Zealand Crustacea. Ext. idem., 1882. All from the author.

Cresson, H. T.—Aztec Music. Ext. Proc. Acad. Nat. Sci. Phil., 1883. From the author.

Lockington, W. N.—The role of parasitic Protophytes. Ext. Proc. Amer. Philos. Soc., 1883. From the author.

Silliman, B.—Investigation of the scientific and economic relations of Sorghum Sugar Industry. A report to the U. S. Commissioner of Agriculture, Nov., 1882. Washington, 1883.

Yarrow, H. C.— Check-list of North American Reptilia and Batrachia. From Bulletin U. S. National Museum. From the author.

Wadsworth, M. E.—The Bishopville and Waterville Meteorites. Ext. Amer. Jour. Sci., 1883.

——The Argillite and Conglomerate of the Boston basin. From the Proc. Boston Soc. Nat. Hist., 1882. Both from the author.

Dunker, W., and Zittel, K. A.—Palæontographica. Beiträge zur Naturgeschichte der Vorzeit. XXIX Band, 5th and 6th Leiferung, 1883. From the author.

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GENERAL NOTES.

GEOGRAPHY AND TRAVELS.[1]

AMERICA.—At a recent meeting of the Royal Geographical Society, Mr. C. R. Markham read an article upon the explorations of Dr. Edwin Heath and others of the courses of the Amaru-mayu (Madre de Dios) and Beni. The streams which flow from the eastern cordillera for a length of upwards of 500 miles unite into these two grand rivers, which effect a junction in 10° 51′–42″ S. lat., and thence flow on to join the Mamoré and form the Madeira. The Beni in flood is said to carry as much water as the Mississippi, yet the Amaru-mayu is far larger, owing greatly to the fact that its main tributary, or rather true upper course, the Ynambari, flows for nearly 200 miles between the Andes and an isolated line of hills, and receives tribute on both sides.

The main stream of the Beni rises in the fertile Yungas of

[1] This department is edited by W. N. LOCKINGTON, Philadelphia.